SEGMENTED ARCHITECTURE FOR MULTIPLE SEQUENCE DETECTION AND IDENTIFICATION WITH FREQUENCY OFFSET COMPENSATION

5 **Related Application**

Related subject matter is disclosed in the following applications assigned to the same Assignee hereof: U.S. Patent Application entitled "Segmented Correlator Architecture For Signal Detection In Fading Channels", Serial No. 09/665511, filed 09/19/200, *2000 now abandoned* and U.S. Patent Application entitled "Segmented Architecture For Multiple Sequence Detection And

10 Identification In Fading Channels", Serial No. 09/664646, filed 09/19/2000. *now U.S. patent No. 6,771,688*

Background of the Invention

1. Field of the Invention

15 The present invention relates to communications; more specifically, wireless communications.

2. Description of the Related Art

Wireless communications involve creating a voice or data communication channel

20 between a mobile communication station and a base station. Setting up the communication channel typically involves the mobile station transmitting a known sequence on an access channel that is monitored by the base station. The base station detects the known sequence and uses it for functions such as estimating a timing difference between the mobile station and base station.

The signal transmitted by the mobile station to the base station over an access channel

25 typically includes a known sequence based on one of M possible signature sequences comprising S symbols. In one such system, M=16 different signature sequences are available, where each signature sequence comprises S=16 symbols. UMTS W-CDMA uses length 16 Walsh-Hadamard sequences as signature sequences. These sequences are well known in the art and are described on pages 15-16 of 3GPP TSG RAN "Spreading and Modulation (FDD)," TS25.213

30 V3.2.b. Once one of the 16 symbol signature sequences is selected, it is used to generate a sequence that is transmitted to the base station. FIG. 1 illustrates how the transmit sequence is generated from a 16 symbol signature sequence. Sequence 10 represents a 16 symbol signature